

Figure S1 The comparison of starch, amylose and amylopectin accumulation in wt and o7 kernels.

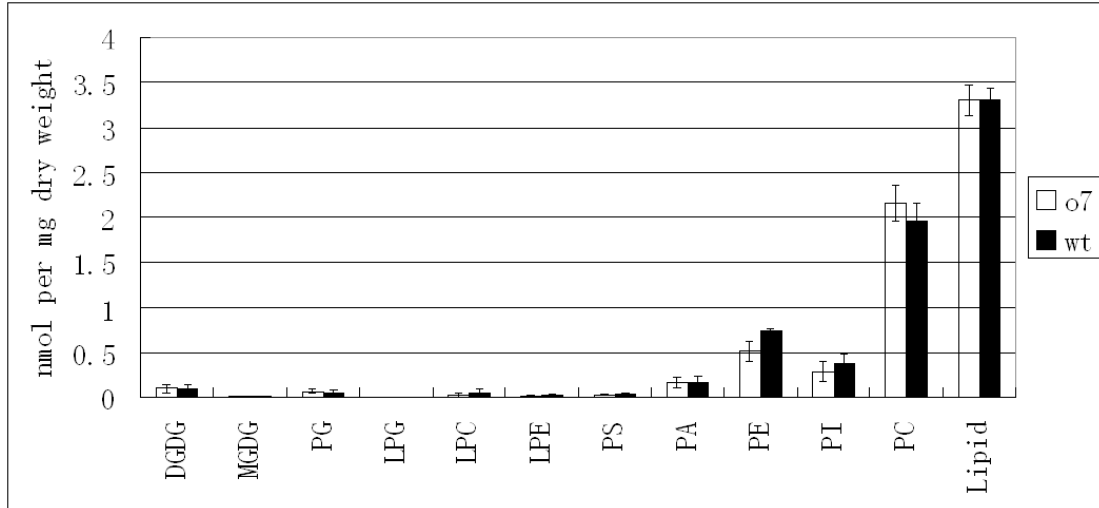
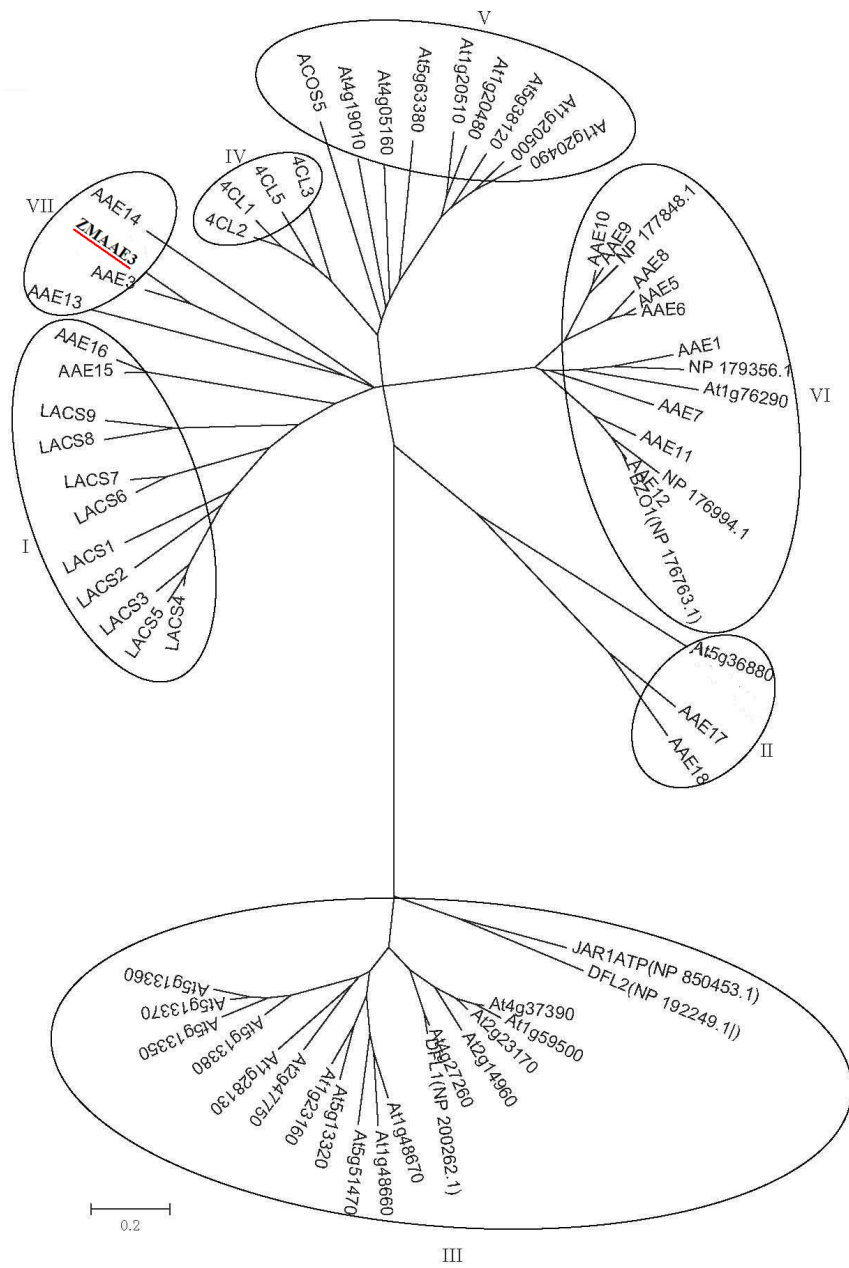
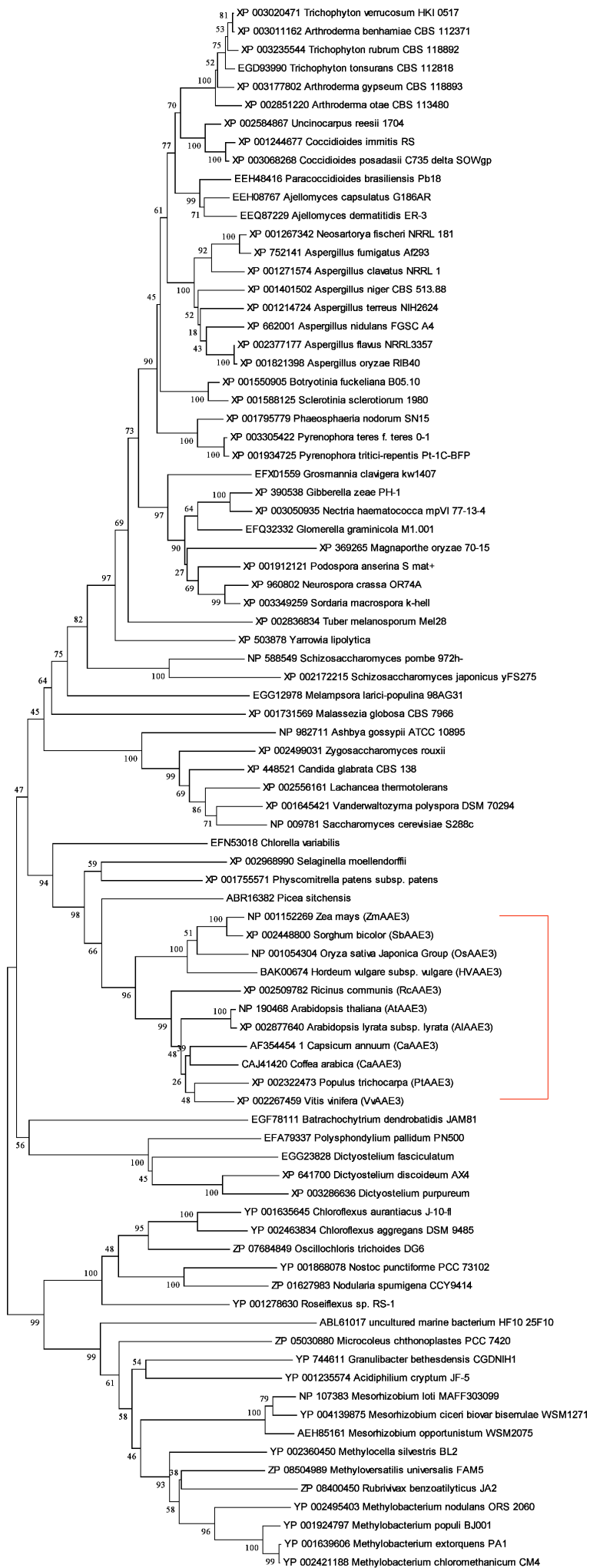


Figure S2 The comparison of fatty acids and total lipid accumulation in wt and o7 kernels.





0.05

Figure S3 Phylogenetic trees for the ACS superfamily and AAE3 family. (A) Phylogenetic tree of ACS superfamily based on the O7 protein and the ACS proteins of *Arabidopsis thaliana*. (B) Phylogenetic tree of AAE3 family based on AAE3 homologs from fungi, bacteria and plants.

Table S1 List of primers

| Primer | Sequences (5'-3') |
|----------|--|
| umc2172 | Forward: AGTAATCTCATGCCCGCTCTTCTT |
| | Reverse: TACGCTGAGTCAAAAACCAGGAAT |
| umc2021 | Forward: AACTCAAGCTCGGAATGTACTGC |
| | Reverse: CGATACTGATCTACTTCACGCTGG |
| IDPg01A | Forward: CGGTAACITTTTCGTCAAGC |
| | Reverse: TCCTCATACGATGGACTGATA |
| IDPg12A | Forward: AGTCATAGACGAACCCAA |
| | Reverse: GACACGAATTTTGGTTGC |
| LM2 | Forward: ACCCTGATCACCCGGTGC |
| | Reverse: TTGGGGTTGGGAGGAAGC |
| LM3 | Forward: GCGGTCCATTTGACAACT |
| | Reverse: GACACGAAAACCAAGCGA |
| LM4 | Forward: AGCAGGCAGGGAAATGTCCT |
| | Reverse: CTGAGGTTGCATTTTGTGGTTC |
| M5 | Forward: AGGCGTCGCACCTGATGA |
| | Reverse: CCTTGTAAACCCGCCGTAC |
| RM1 | Forward: ATTTCAAACITTTGAACCGCG |
| | Reverse: TGGATGAAAAAGTAAACAAATGTC |
| RM2 | Forward: AGCTTCAAACCTCTTCCTGC |
| | Reverse: GCAGGAAGAGGGTTTGAAGCT |
| RM3 | Forward: TCCGATCACATTCTCTCAG |
| | Reverse1: TCCAACITACATACAACITCTCGT |
| | Reverse2: CACGACGTTGTAAAACGACTCCAACITCAACITCTAAC |
| umc1038 | Forward: CGTCACACTCCTCTGCCACTT |
| | Reverse: GAGGATTCAGAACTCGACTCGG |
| maize P3 | Forward: CGGGGTACCACTAGTACCGCGGGGGAGAAGAT |
| | Reverse: CGCGGATCCGAGCTCACTGGTGGCTGCACGAA |

| | | |
|----------------|----------|-----------------------------------|
| ZmUBQ-Q | Forward: | CTGGTGCCCTCTCCATATGG |
| | Reverse: | TGCATGTGTTTGTTCATCAGG |
| 6837-Q | Forward: | TCGACGGATTGGAATTCG |
| | Reverse: | CGCAATGCGGGAACAAC |
| Trans6837 F3R3 | Forward: | CGCAATGATGGCATTGTAG |
| | Reverse: | TCGACGCTTTGAGACCTGTT |
| Indel6819 | Forward: | TAAATGAAGTCAGGTGCT |
| | Reverse: | CATCCAAGAATGATCGA |
| O7 promoter | Forward: | CGCGGATCCACATACGCTGCAAACAGTG |
| | Reverse: | GGCGAATCCAATCGTGTTCGTACCTG |
| RiceP3 | Forward: | CGGGTACCACTAGTCGGCGATCATGGAGAAGCT |
| | Reverse: | CGCGGATCCGAGCTCCCTCCGGTTCCTTGTA |
| 6837FLcDNA | Forward: | CGCGGATCCATGGCTATGGCGACGACGG |
| | Reverse: | GGCGAATTCTCAGGCACTGGTCGGCTGC |
| Rice intron | Forward: | ATCTCGAAACAGCCGTGCATAG |
